

**Notice of Allowability**

Applicant(s)

10/066,187

Examiner

Binh C. Tat

Applicant(s)

TEIG ET AL.

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment on 03/08/04.
2. ☒ The allowed claim(s) is/are 1, 3-11, and 13-17.
3. ☒ The drawings filed on 02/05/04 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 04/21/04, 02/05/04, 01/08/04 *dup.*
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mani Adeli on 06-10-04.

The application has been amended as follow:

Claim 1 line 6 after "in the group", insert: -, wherein performing said first depth- first search comprises: identifying a first set of routes for a first net in the group, wherein each route has a cost; individually examining the first-set routes until the complete routing solution is identified or until all first-set routes have been examined without identifying the complete routing solution; and wherein individually examining a particular first-set route includes determining whether, in the region with the particular first-set route embedded, a first partial routing solution for the nets other than the first net exists such that the cost of the particular first-set route plus the first partial solution does not exceed the total cost--.

Claim 2 has been canceled.

Claim 3 line 1 change "claim 2" to "claim 1.

Claim 6 line 1 change "claim 2" to "claim 1.

Claim 7 line 1 change "claim 2" to "claim 1.

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Claim 11 line 8 after “the group”, insert: --, wherein the second set of instructions comprises: a fourth set of instructions for identifying a first set of routes for a first net in the group, wherein each route has a cost; a fifth set of instructions for individually examining the first-set routes until the complete routing solution is identified or until all first-set routes have been examined without identifying the complete routing solution; and wherein the fifth set of instructions includes a sixth set of instructions for determining whether, in the region with the particular route embedded, a first partial routing solution for the nets other than the first net exists such that the cost of the particular route plus the first partial solution does not exceed the total cost--.

Claim 12 has been canceled.

Claim 13 line 1 change “claim 12” to “claim 11.

Claim 15 line 1 change “claim 12” to “claim 11.

Claim 16 line 1 change “claim 12” to “claim 11.

Claims 18-23 have been canceled.

#### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-17 drawn to method of routing, classified in class 716, subclass 12.
- II. Claims 18-23 drawn to method of detailed routing, classified in class 716, subclass 14.

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that

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the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the routing ingroup I does not need the detailed routing in group II and the detail routing in group II can be used in other applications.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with attorney Mani Adeli on 06-10-04 an election was made without traverse to prosecute the invention of Group I, claims 1-17.

Cancel claims 18-23.

### ***Reasons for Allowance***

The following is an examiner's statement of reasons for allowance:

*I.* Claims 1, 3-11, 13-17 are allowed because the prior art does not teach or suggest a method of specifying routes for a group of at least two nets, the method comprising: a) specifying a total cost; b) performing a first depth-first search to identify, wherein performing a first depth- first search comprises: identifying a first set of routes for a first net in the group, wherein each route has a cost; individually examining the first-set routes until the complete routing solution is identified or until all first-set routes have been examined without identifying the complete routing solution; and c) wherein individually examining a particular first-set route includes determining whether, in the region with the particular first-set route embedded, a first partial routing solution for the nets other than the first net exists such that the cost of the particular first-set route plus the first partial solution does not exceed the total cost, for the group

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of at least two nets, a complete routing solution that has a cost that does not exceed the total cost, wherein a routing solution for a group of nets includes a route for each net in the group; and c) if the search cannot find the complete routing solution, incrementing the total cost and performing a second depth-first search to identify a complete routing solution for the group of nets that has a cost that does not exceed the incremented total cost.

2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh Tat whose telephone number is (703) 305-4855. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

4. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Tat Binh  
Patent Examiner  
June 12 2004

  
**VUTHE SIEK**  
**PRIMARY EXAMINER**